

REMARKS

Claims 1-5 are now pending in the application. Claims 1-5 stand rejected. Claim 1 is amended. Claims 6-11 are added. All claim amendments and new claims are fully supported in the originally filed specification at paragraphs 4 and 5. The Examiner is respectfully requested to reconsider and withdraw the rejection in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Morin et al. (U.S. Pat. No. 6,230,129) in view of Gandhi et al. (U.S. Pat. No. 5,687,287). This rejection is respectfully traversed.

Morin et al. is generally directed toward a word model training procedure. In particular, Morin et al. is directed toward assessing similarity of input phonemes respective of predefined phonemes, normalization of phoneme similarity data respective of a non-speech part of the signal, segmentation of the phoneme similarity data, and summation over the segmented phoneme similarity data to form a digital word prototype (Abstract). However, Morin et al. does not teach, suggest, or motivate computing an initial raw similarity value for each of a plurality of sound classes, or concatenating normalized similarity values from multiple discriminate vectors associated with multiple sound classes to form a normalized similarity vector.

Gandhi et al. is generally directed toward a speaker verification method using mixture decomposition discrimination. In particular, Gandhi et al. is directed toward applying Fisher's discrimination criterion to discriminate between two speaker classes, with one class representing a case of a word spoken by a true speaker, and another

class representing a case of the word spoken by impostaers (column 5, lines 40-43). However, Gandhi et al. does not teach, suggest, or motivate computing an initial raw similarity value for each of a plurality of sound classes, or concatenating normalized similarity values from multiple discriminate vectors associated with multiple sound classes to form a normalized similarity vector.

Applicants' claimed invention is generally directed toward speech recognition. In particular, Applicants' claimed invention is directed toward using linear discriminant analysis, with normalization specific to each sound class, to discriminate between two or more sound classes in input speech, so that sub-word units to be modeled are not required to be units of a particular sound class, such as phonemes (paragraphs 4 and 5 of the originally filed specification). For example, independent claim 1, as amended, recites "computing an initial raw similarity value for each of a plurality of sound classes". Support for the amendment may be found in the originally filed specification at paragraph 4. Also, independent claim 5, as originally filed, recites "concatenating normalized similarity values from multiple discriminate vectors associated with multiple sound classes to form a normalized similarity vector". Thus, neither Morin et al. nor Gandhi et al. teach, suggest, or motivate all of the elements of the independent claims. These differences are significant because speech recognition according to the claimed invention can be realized without requiring all modeled subword units to be of one, particular sound class as explained in paragraph 4 of the originally filed specification. Applicants further respectfully direct the Examiner's attention to new claims 6-11, which are fully supported in the specification as originally filed at paragraphs 4 and 5.

Accordingly, Applicant's respectfully request the Examiner withdraw the rejection of claims 1-5 under 35 U.S.C. 103(a). Applicants further respectfully direct the Examiner's attention to new claims 6-11, which are fully supported in the specification as originally filed at paragraphs 4 and 5.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: 12-20-2001

By: J.S. Brooks
Jennifer S. Brooks
Reg. No. 51,501
Gregory A. Stobbs
Reg. No. 28,764

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

[GAS/JSB]